

MAY 21 2008

Serial No.: 10/537,187

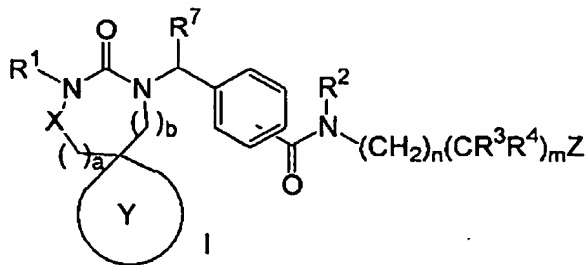
Case No.: 21208Y

Page No.: 2

**Listing of Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (Currently Amended) A compound represented by formula I:



or a pharmaceutically acceptable salt or solvate thereof, wherein:

one of a and b is 1 and the other is 0;

X is CH<sub>2</sub>;

R<sup>1</sup> is selected from the group consisting of:

(1) C<sub>1-15</sub> alkyl optionally substituted with up to five groups as follows: (a) 1-3 OH groups; (b) 1 oxo group; (c) 1-5 halo groups, up to a perhaloalkyl group; (d) 1-3 C<sub>1-6</sub> alkoxy groups optionally substituted with up to five halo or a perhaloalkoxy, or up to 2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (e) 1-2 CO<sub>2</sub>R<sup>6</sup> groups and (f) 1-2 phenyl groups, each optionally substituted as follows: 1-5 halo groups, (2) 1-2 OH, CO<sub>2</sub>R<sup>6</sup>, CN or S(O)<sub>p</sub>R<sup>5</sup> groups, and (3) 1-2 C<sub>1-6</sub> alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO<sub>2</sub>R<sup>6</sup> groups; and

(2) ~~aryl or heteroaryl~~phenyl, optionally substituted as set forth below:

(a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3 C<sub>1-15</sub> alkyl or alkoxy groups, each optionally substituted with up to five halo and 1-2 hydroxy or CO<sub>2</sub>R<sup>6</sup> groups; (d) 1-2 CO<sub>2</sub>R<sup>6</sup>, CN, S(O)<sub>p</sub>R<sup>5</sup> or CONR<sup>9</sup>R<sup>10</sup> groups; (e) NR<sup>9</sup>R<sup>10</sup>; (f) SCF<sub>3</sub>; (g) phenyl, heteroaryl or O-phenyl, said group being optionally substituted with 1-5 halo groups, 1-2 OH, CO<sub>2</sub>R<sup>6</sup>, CN or S(O)<sub>n</sub>R<sup>5</sup> groups, and 1-2 C<sub>1-6</sub> alkyl or alkoxy groups, each optionally substituted with 1-5 halo, up to perhaloalkyl, and 1-2 OH or CO<sub>2</sub>R<sup>6</sup> groups;

R<sup>2</sup> represents H or C<sub>1-6</sub>alkyl;

R<sup>3</sup> represents H or F;

R<sup>4</sup> is selected from the group consisting of H, F and OH;

or R<sup>3</sup> and R<sup>4</sup> are taken in combination and represent an oxo group;

R<sup>5</sup> represents a C<sub>1-10</sub>alkyl group;

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 3

$R^6$  represents H or  $C_{1-10}$ alkyl, optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2H$ ,  $CO_2C_{1-6}$ alkyl, and 1-3 halo groups;

$R^7$  represents H,  $CO_2R^6$ ,  $C_{1-6}$ alkyl optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2R^6$  or 1-3 halo groups;

$R^8$  and  $R^9$  are independently selected from H and  $C_{1-6}$ alkyl;

$R^{10}$  is H or is independently selected from:

(a)  $C_{1-10}$ alkyl, optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2H$ ,  $CO_2C_{1-6}$ alkyl, and 1-3 halo groups; (b) aryl or  $C_{1-6}$  alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c) heterocycle, or  $C_{1-6}$ alkyl-heterocycle, optionally substituted with 1-5 halo groups and 1-3 groups selected from: oxo,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or  $C_{1-6}$ alkyl-heteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from:  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo;

$R^{11}$  is independently selected from the group consisting of:

(a)  $C_{1-10}$ alkyl, optionally substituted with OH,  $OC_{1-6}$ alkyl,  $CO_2H$ ,  $CO_2C_{1-6}$ alkyl, and 1-3 halo groups; (b) aryl or  $C_{1-6}$  alkaryl, each optionally substituted with 1-5 halos and 1-3 members selected from the group consisting of: CN, OH,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; (c) heterocycle, or  $C_{1-6}$ alkyl-heterocycle, optionally substituted with 1-5 halo groups and 1-3 groups selected from: oxo,  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo; and (d) heteroaryl or  $C_{1-6}$ alkyl-heteroaryl, optionally substituted with 1-5 halo groups and 1-3 groups selected from:  $C_{1-10}$ alkyl and  $OC_{1-10}$  alkyl, said alkyl and alkoxy being further optionally substituted with 1-5 halo groups up to perhalo;

~~Y represents a 4 to 8 membered spirocarbocyclic ring,~~

~~said spirocarbocyclic ring being optionally substituted on either carbon or nitrogen atoms with up to three groups independently selected as follows:~~

~~(a) 1-2 phenyl groups, each being optionally substituted with one to five groups independently selected from the group consisting of: (1) 1-3 hydroxy groups; (2) 1-5 halo groups; (3) 1-3  $C_{1-6}$ alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo or 1-2 OH or  $CO_2R^6$  groups, and (4) 1-2  $CO_2R^6$ , CN,  $S(O)_pR^6$ ,  $CONR^9R^{10}$  or  $NO_2$  groups;~~

~~(b)  $C_{1-10}$  alkyl optionally substituted with 1-5 groups selected as follows: (i) 1-3 hydroxy groups; (ii) 1 oxo group; (iii) 1-5 halo groups up to perhalo; (iv) 1-3  $C_{1-10}$  alkoxy groups;~~

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 4

optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or  $\text{CO}_2\text{R}^6$  groups; (v) ~~1-2  $\text{CO}_2\text{R}^6$  groups;~~ (vi) ~~phenyl, optionally substituted with one to five groups independently selected from the group consisting of: (a) 1-3 hydroxy groups; (b) 1-5 halo groups; (c) 1-3  $\text{C}_{1-6}$  alkyl or alkoxy groups, optionally substituted with 1-5 halo groups up to perhalo, or 1-2 hydroxy or  $\text{CO}_2\text{R}^6$  groups; (d) 1-2  $\text{CO}_2\text{R}^6$ ; CN,  $\text{S}(\text{O})_p\text{R}^5$ ,  $\text{CONR}^9\text{R}^{10}$  or  $\text{NO}_2$  groups; (e) 1-2 phenyl rings, each of which is optionally substituted as follows: 1-3  $\text{C}_{1-10}$  alkyl or alkoxy groups, each being further optionally substituted with 1-5 halo up to perhalo, or 1-2 hydroxy or  $\text{CO}_2\text{R}^6$  groups;~~

~~\_\_\_\_\_ said spirocarbocyclic or spiroheterocyclic ring being further optionally substituted on a carbon atom with a member selected from the group consisting of:~~

~~(a)  $\text{NR}^8\text{C}(\text{O})\text{NR}^9\text{R}^{10}$ ; (b)  $\text{NR}^8\text{CO}_2\text{R}^{11}$ ; (c)  $\text{NR}^8\text{C}(\text{O})\text{R}^{11}$ ; (d)  $\text{NR}^9\text{R}^{10}$ ;  
(e)  $\text{NR}^8\text{SO}_2\text{R}^{11}$ ; (f)  $\text{SO}_2\text{NR}^9\text{R}^{10}$ ; (g)  $\text{C}(\text{O})\text{NR}^9\text{R}^{10}$  and (h)  $\text{OC}(\text{O})\text{NR}^9\text{R}^{10}$ ;~~

~~\_\_\_\_\_ and when said ring contains a nitrogen atom, said ring being further optionally substituted on the nitrogen atom with a member selected from the group consisting of:~~

~~(a)  $\text{C}(\text{O})\text{NR}^9\text{R}^{10}$ ; (b)  $\text{CO}_2\text{R}^{11}$ ; (c)  $\text{C}(\text{O})\text{R}^{11}$ ; and (d)  $\text{SO}_2\text{R}^{11}$ ;~~

Y represents a spirocyclohexyl ring that is substituted with a  $\text{C}_{1-4}$  alkyl group that is optionally substituted with a phenyl ring;

m and p are independently selected from 0, 1 and 2, and n is an integer from 0 to 6, when both m and n are zero, Z is selected from 5-tetrazolyl and 5-(2-oxo-1,3,4-oxadiazolyl) and when one of m and n is other than zero, Z is selected from the group consisting of:  $\text{CO}_2\text{R}^6$ , with  $\text{R}^6$  as defined above, 5-tetrazolyl and 5-(2-oxo-1,3,4-oxadiazolyl).

Claim 2 (Currently Amended) A compound in accordance with claim 1 wherein:

$\text{R}^1$  is selected from the group consisting of:

- (1)  $\text{C}_{1-6}$  alkyl optionally substituted with 1-3 groups selected from: OH, halo,  $\text{C}_{1-3}$  alkoxy, halo- $\text{C}_{1-3}$ alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups,  $\text{SO}_2\text{R}^5$ , and 1-2  $\text{C}_{1-3}$ alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and
- (2) ~~aryl~~phenyl optionally substituted with 1-3 halo groups; 1-2  $\text{C}_{1-3}$ alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups;  $-\text{NR}^9\text{R}^{10}$  wherein  $\text{R}^9$  and  $\text{R}^{10}$  are H or methyl;  $\text{SCF}_3$  and heteroaryl.

Claim 3 (Original) A compound in accordance with claim 2 wherein:

$\text{R}^1$  represents phenyl optionally substituted with 1-2 groups selected from Br, Cl; trifluoromethyl and trifluoromethoxy.

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 5

## Claims 4-7 (Cancelled)

Claim 8 (Currently Amended) A compound in accordance with claim 71 wherein:  
Y represents a spirocyclohexyl group substituted with a t-butyl group at the 4 position.

Claim 9 (Original) A compound in accordance with claim 1 wherein:  $R^2$  is H or  $C_{1-3}$ alkyl.

Claim 10 (Original) A compound in accordance with claim 9 wherein:  $R^2$  represents H.

Claim 11 (Original) A compound in accordance with claim 1 wherein:  $R^7$  represents H or methyl.

Claim 12 (Original) A compound in accordance with claim 11 wherein  $R^7$  represents H.

Claim 13 (Original) A compound in accordance with claim 1 wherein:  
n and m represent 0; and Z represents a 5-tetrazolyl group.

Claim 14 (Original) A compound in accordance with claim 1 wherein:  
m represents 0, n represents 2, and Z represents a  $CO_2R^6$  group.

Claim 15 (Original) A compound in accordance with claim 1 wherein:  
m and n each represent 1,  $R^3$  represents OH,  $R^4$  represents H and Z represents a  $CO_2R^6$  group.

Claim 16 (Currently Amended) A compound in accordance with claim 1 wherein:  
 $R^1$  is selected from the group consisting of:

- (1)  $C_{1-6}$  alkyl optionally substituted with 1-3 groups selected from: OH, halo,  $C_{1-3}$  alkoxy, halo- $C_{1-3}$ alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups,  $SO_2R^5$ , and 1-2  $C_{1-3}$ alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and
- (2) aryl optionally substituted with 1-3 halo groups; 1-2  $C_{1-3}$ alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups;  $-NR^9R^{10}$  wherein  $R^9$  and  $R^{10}$  are H or methyl;  $SCF_3$  and heteroaryl;

X represents  $CH_2$ ;

one of a and b represent 1 and the other represents 0;

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 6

Y represents a ~~spiroC<sub>4-6</sub>cycloalkyl group or a 5-6 membered spiroheterocyclic group~~  
containing 1 N atom;

~~said ring being optionally substituted with a C<sub>1-6</sub> alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C<sub>1-3</sub> alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups; spirocyclohexyl ring substituted with a C<sub>1-4</sub> group that is optionally substituted with a phenyl ring;~~

R<sup>2</sup> is H or C<sub>1-3</sub>alkyl;

R<sup>7</sup> represents H or methyl;

m and n represent 0, and Z represents a 5-tetrazolyl group.

Claim 17 (Currently Amended) A compound in accordance with claim 1 wherein:

R<sup>1</sup> is selected from the group consisting of:

(1) C<sub>1-6</sub> alkyl optionally substituted with 1-3 groups selected from: OH, halo, C<sub>1-3</sub> alkoxy, halo-C<sub>1-3</sub>alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups, SO<sub>2</sub>R<sup>5</sup>, and 1-2 C<sub>1-3</sub>alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and

(2) arylphenyl optionally substituted with 1-3 halo groups; 1-2 C<sub>1-3</sub>alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups; -NR<sup>9</sup>R<sup>10</sup> wherein R<sup>9</sup> and R<sup>10</sup> are H or methyl; SCF<sub>3</sub> and heteroaryl;

X represents CH<sub>2</sub>;

one of a and b represents 1 and the other represents 0;

Y represents a ~~spiroC<sub>4-6</sub>cycloalkyl group,~~

~~said ring being optionally substituted with a C<sub>1-6</sub> alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2 C<sub>1-3</sub> alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups; spirocyclohexyl optionally substituted with a C<sub>1-4</sub> alkyl group that is optionally substituted with a phenyl ring;~~

R<sup>2</sup> is H or C<sub>1-3</sub>alkyl;

R<sup>7</sup> represents H or methyl;

m represents 0, n represents 2, and Z represents a CO<sub>2</sub>R<sup>6</sup> group.

Claim 18 (Previously Presented) A compound in accordance with claim 1 wherein:

R<sup>1</sup> is selected from the group consisting of:

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 7

(1)  $C_{1-6}$  alkyl optionally substituted with 1-3 groups selected from: OH, halo,  $C_{1-3}$  alkoxy, halo- $C_{1-3}$ alkoxy and phenyl, said phenyl being optionally substituted with 1-3 halo groups,  $SO_2R^5$ , and 1-2  $C_{1-3}$ alkyl or alkoxy groups optionally substituted with 1-3 halo groups, and

(2) aryl optionally substituted with 1-3 halo groups; 1-2  $C_{1-3}$ alkyl or alkoxy groups, each optionally substituted with 1-3 halo groups;  $-NR^9R^{10}$  wherein  $R^9$  and  $R^{10}$  are H or methyl;  $SCF_3$  and heteroaryl;

X represents  $CH_2$ ;

one of a and b represents 1 and the other represents 0;

Y represents a spiro $C_{4-8}$ cycloalkyl group or a 5-6 membered spiroheterocyclic group containing 1 N atom,

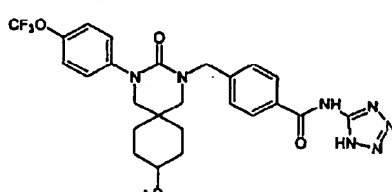
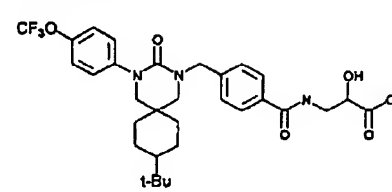
said ring being optionally substituted with a  $C_{1-6}$  alkyl group, which is optionally substituted with 1-3 halo groups or 1 Phenyl ring that is optionally substituted with 1-2 halo, 1-2  $C_{1-3}$  alkyl or alkoxy groups, said alkyl and alkoxy substituents being further optionally substituted with 1-3 halo groups;

$R^2$  is H or  $C_{1-3}$ alkyl;

$R^7$  represents H or methyl;

m and n each represent 1,  $R^3$  represents OH,  $R^4$  represents H and Z represents a  $CO_2R^6$  group.

Claim 19 (Currently Amended) A compound in accordance with claim 1 selected from the following table:

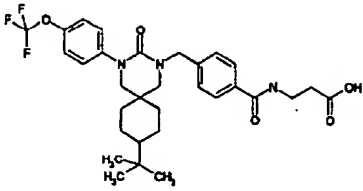
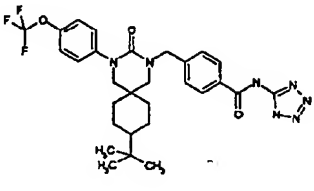
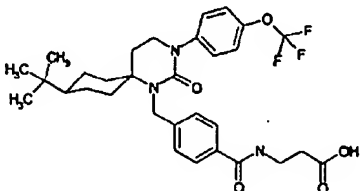
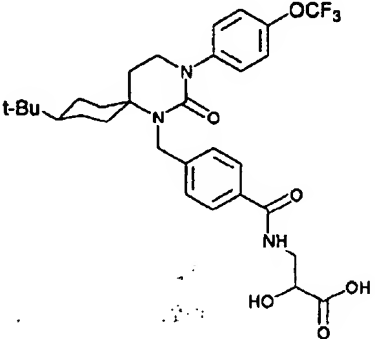
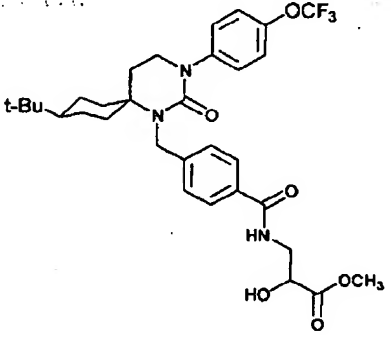
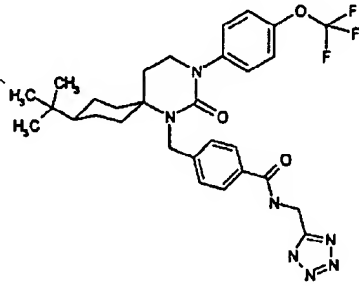
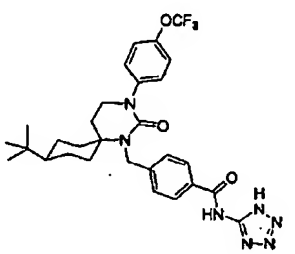
TABLE 1			
	Compound		Compound
			

Serial No.: 10/537,187

Case No.: 21208Y

Page No.: 8

TABLE 1

TABLE 1	
Compound	Compound
	
	
	
	

Serial No.: 10/537,187  
Case No.: 21208Y  
Page No.: 9

or a pharmaceutically acceptable salt or solvate thereof.

Claim 20 (Original) A pharmaceutical composition comprising a compound in accordance with claim 1 in combination with a pharmaceutically acceptable carrier.

Claim 21 (Withdrawn) A method of treating type 2 diabetes mellitus in a mammalian patient in need of such treatment comprising administering to said patient a compound in accordance with claim 1 in an amount that is effective to treat said type 2 diabetes mellitus.